



BRUXELLES MOBILITÉ

SERVICE PUBLIC RÉGIONAL DE BRUXELLES

Light electric vehicles in the Brussels Capital Region

Outlook and recommendations
EXECUTIVE SUMMARY

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Executive summary

I. Light electric vehicles

Light electric vehicles (LEVs) are an emerging class of light vehicles between the bicycle and the car, with many comparative advantages over the latter. The work carried out during this mission enabled us to explore the sector's structure, objectively assess the interests of LEVs, evaluate their potential for mobility in the Brussels Capital Region and identify the levers for action to enable their appropriate development.

Our analysis has shown that light electric vehicles are resource-efficient, energy-saving, cost significantly less than a car, emit on average 10 times less CO₂ than a combustion-powered city car and take up half as much space. Since 2022, these economic and socio-ecological benefits have prompted the French Environment and Energy Management Agency (ADEME) to support the structuring of an industrial sector of manufacturers in France, through the *Extrem'Défi* programme. This public support has led to the emergence of a large number of players in the light electric vehicle segment. This segment now comprises a wide range of vehicles, from 4-wheel bicycles to microcars capable of speeds of up to 90 km/h. *Extrem'Défi* has therefore enabled the creation of a complete technical ecosystem, although it has not yet really explored the regulatory, tax and societal obstacles that are preventing the mass adoption of these vehicles. That is what we propose to do in this note.

Our work has made it possible to address a number of points that have not yet been dealt with. For example, we propose a clear definition of a light electric vehicle, as well as a new regulatory and tax framework that integrates these vehicles. We define a light electric vehicle as follows: *"A light electric vehicle is a light road vehicle, with a seat, whose maximum speed - or electric assistance - is limited by design to under 90 km/h¹, with three or four wheels, which is not intended for use on cycle paths in built-up areas as it is too wide, too fast or has a safety cage commonly known as a passenger compartment."*

In practice, light electric vehicles fall into the European L category (Regulation 168/2013). But this framework, which is also used in the categories of the Belgian traffic code, was designed at a time when light electric vehicles did not yet exist. These categories were essentially created for the motorcycle family, which is very different from light electric vehicles, leading to a number of regulatory inconsistencies.

And yet, light electric vehicles share a number of common characteristics that justify their consideration as a category in their own right. These characteristics give them a series of advantages over the car we are about to present:

¹ Regulatory limit in EU Regulation 168/2013

II. The advantages of LEVs

Energy

Light vehicles are lightweight and limited in speed, making them particularly energy-efficient compared to a passenger car¹.

Today, most of Europe's energy is imported, and the problem of our strategic independence is growing. To preserve our economy, maintain our jobs and guarantee our standard of living, we must move towards local energy production through a significant electrification of uses. Light electric vehicles being fuel-efficient are among the solutions that would enable Belgium to significantly reduce its dependence on energy imports for mobility.

Furthermore, as battery and renewable electrical energy production capacities are not infinite, and production flows will potentially diminish, it is important to guarantee the correct allocation of resources. **As light electric vehicles consume far less than cars, energy can be allocated to other fundamental societal needs** (army, agriculture, health, industry).

Cost

Light electric vehicles, which are lightweight and fuel-efficient, already cost less to buy than current cars (both electric and combustion). 2025 prices range from €8,000 to €17,000, while electric cars start at €20,000, with a core market between €30,000 and €50,000.

In addition, light electric vehicles are extremely economical to use. **Most cost less than €1 per 100 km**, unlike an electric car, which costs three to five times as much, and a combustion car, which costs almost ten times as much.

Belgian households spend an average of €4,701 a year on their car (**Erreur ! Source du renvoi introuvable.**). Switching to a light electric vehicle would more or less halve this cost. Admittedly, some of the savings will be reinvested in other forms of mobility, such as trains or car-sharing for long distances, but there would still be a significant gain in purchasing power.

Resources

The low energy consumption of light electric vehicles means a smaller battery suffices. For example, most light electric vehicles offer a respectable range of between 80 and 200 km, but **their batteries are 10 to 40 times smaller than those of today's electric cars**.

Well, like fossil resources, the available mineral stocks are not infinite, and the proper allocation of resources is a major challenge. Moreover, refined mineral flows are currently imported from a very limited number of countries, led by China. It is therefore important to limit our dependence on these critical minerals (copper, lithium, cobalt, nickel) by using vehicles that are better adapted to our everyday uses.

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Climate

According to ADEME estimates, a **light electric vehicle emits on average** four times less CO₂ than an electric city car and **ten times less than a combustion-powered city car** over its life cycle (extraction, manufacture, use, recycling). The gains are significantly greater for family cars and SUVs.

Road safety

Vehicle weight has a major impact on accident severity. **It is important to organise a collective shift towards lighter vehicles.** Light electric vehicles could provide a way out of the current prisoner's dilemma, whereby everyone tends to buy a bigger, taller, safer vehicle to protect themselves from the bigger, taller vehicles of other drivers.

Air pollution

Air pollution is responsible for almost 1,000 deaths every year in the Brussels Capital Region. It leads to numerous chronic illnesses and costs society dearly in terms of care and quality of life. A widespread switch to electric power should keep engine-related pollution (NO_x, PM, SO_x, etc.) to a minimum, but it would be advisable to combine this with **a reduction in vehicle mass, so as also to limit particles not linked to exhaust gases** (wear and abrasion of brakes, tyres and roads).

Space occupancy

Limited in width and length by regulations, light electric vehicles take up **half as much space as a conventional car**. The space thus freed up can be reallocated to other uses, whether in household parking spaces or public places.

Infrastructure maintenance

It is estimated that **the weight of vehicles accelerates wear and tear on infrastructure** (roads and engineering structures) with four times the weight per axle. Light electric vehicles could save the Region money on road maintenance.

Sedentariness

Some "active" light electric vehicles include a pedal box that controls engine acceleration. This system includes the driver, who becomes active in their journey, **improving both physical and mental health.**



III. Their mobility potential

Our analysis focused on the mobility of individuals, as well as on that of professionals, such as home service providers. In particular, we proposed an area of relevance for light electric vehicles - trips of less than 50 km and involving fewer than two people - to estimate the proportion of trips that could be made using LEVs.

In total, **82.5% of all car trips** made by the people of Brussels are within the scope of light electric vehicles. In the case of Flemish commuters coming from or going to the Brussels Capital Region, 70.9% of trips could be made by light electric vehicle, despite the longer average distance.

The potential is therefore considerable. Furthermore, journeys outside this area of relevance will probably be made by a highly mobile minority who have no intention of doing without a car, which would increase the number of potentially substitutable cars. We were unable to take this analysis any further by estimating the number of potential vehicles in the medium term, notably due to the limitations of the travel behaviour survey (ECD 2024). In France, estimates vary from half to four-sevenths of the car fleet that could be replaced by a light electric vehicle in the medium term.

Lastly, it is worth noting that light electric vehicles could emerge thanks to future energy crises, in the same way that the oil crises of 1973 and 1979 led to the growth of cycling in northern countries, or the advent of nuclear power and the TGV in France. Light electric vehicles could be at the heart of a crisis response policy.

IV. Our recommendations



1. Create a vehicle category

To create a framework conducive to the development of LEVs, we propose **creating a new category of vehicle in the traffic Code**. This category would clarify the difference between bicycles authorised for use on cycle paths and other cycles, while separating mopeds and motorcycles - which are vehicles with saddles - from light electric vehicles - which are vehicles with seats.

We propose dividing light electric vehicles into three classes according to their maximum achievable speed: 25 km/h, 45 km/h and 90 km/h.

In particular, this approach would clarify the categories in the traffic code, in anticipation of the arrival of vehicles between cars and bicycles, which are currently difficult to categorise.

Each class would have its own traffic rules:

- Class 1 light electric vehicles (whose assistance stops at 25 km/h), although generally forbidden on cycle paths (especially in built-up areas), may be authorised to use them outside built-up areas, to avoid creating excessive speed differentials with cars, a factor which aggravates accidents.
- Class 2 light electric vehicles (limited by design to 45 km/h) may be authorised to travel in the Region's tunnels, all of which are limited to 50 km/h. However, they will remain excluded from motor vehicle roads.
- Class 3 light electric vehicles (limited by design to 90 km/h) will be allowed (as at present, as motor quadricycles with passenger compartments) on motorways and motor roads.

2. Adapt regional automobile taxation

To encourage the purchase of light electric vehicles, and more generally the choice of a lighter vehicle, we recommend **introducing a progressive tax based on vehicle weight into the registration tax (TMC)**.

For the price effect to take place, the TMC of the heaviest vehicles would have to represent a significant proportion of the purchase price, but this tax would also have to be included in the dealer's purchase price, to guarantee that the buyer is making an informed choice.

3. Company car

To enable rapid adoption of the light electric vehicle, at the expense of heavier vehicles, and support the viability of LEV stakeholders, we recommend facilitating the integration of light electric vehicles into company car offerings. To achieve this, light electric vehicles must be allowed to **benefit from the flat-rate calculation of the benefit in kind** (the tax system used to calculate the benefit received by the employee). Today, if employees wanted to have light electric vehicles, they would have to declare all their private journeys, and the associated distances, to their employers, so that the latter could assess the actual benefit received. This administrative burden effectively prevents the inclusion of light electric vehicles in company car offerings.

Furthermore, it would be interesting to take advantage of the forthcoming generalisation of the mobility budget² to promote a shift towards light electric vehicles, once the various regulatory obstacles have been removed.

4. Dedicated parking

In addition to a regulatory and tax policy, it would be appropriate to include light electric vehicles in the regional parking policy, in order to promote these vehicles in the Brussels Capital Region.

This note proposes, for example, the **creation of a new parking standard dedicated to light electric vehicles**³. Primarily designed for off-street use (office buildings, shopping centres, new housing), this system could be adapted to on-street use, in line with the development of these vehicles in public spaces, or for redevelopments in constrained spaces. This new standard would enable LEVs to benefit from a "showcase" effect, putting them in the spotlight close to centres of interest or in areas with parking shortages.

5. Create a specific permit

To better regulate access to the driving of certain vehicles currently referred to as "unlicensed", we propose **introducing the European B1 licence** in Belgium, and adapting it so that driving a Class 2 or 3 light electric vehicle requires this licence.

The AM licence - currently required to drive a Class 2 light electric vehicle - would be limited to driving saddle-mounted mopeds.

² To all those entitled to a company car

³ Based on European regulatory limits



6. Imagery

Switching to light electric vehicles implies working on the imagery associated with the car. We therefore propose:

- **Discontinuing the use of the term "unlicensed vehicle"**, which is too closely associated with teenagers and bad drivers.
- Opening a debate on automobile advertising in public spaces
- Promoting the light electric vehicle and its advantages to the public at major events, or with the help of celebrities.



7. Adapt European regulations

The recommendations set out in this note can all be implemented in line with current European regulations. However, the sector can only really be structured if European regulations evolve to take better account of these vehicles. We recommend that Belgium and the Brussels Capital Region send several messages to the European level:

1. It is essential to **separate the regulations governing the technical characteristics of mopeds and motorcycles with saddles from those governing the technical characteristics of light electric vehicles**
2. Light vehicle licences should be reorganised to include light electric vehicles in a more coherent way than at present.
3. It is important to stay within the regulatory limits for weight, speed and dimensions.
4. It would be advisable to remove the regulatory limit of two seats for the current L6e-BP category.